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CONCERNING THE GENUS EXOCOETUS LINNAEUS

THE name *Exocœtus*, taken from Artedi (*Genera Piscium*, 1738) appears in technical nomenclature in the tenth edition of the Systema Naturae, in 1758. It is based on a single species of flying fish, called *Exocœtus volitans*. The short description is taken from the list of animals in the Museum of Prince Adolph-Frederik, "Museum Principis," printed in the Amœniitates Academiciæ, I, p. 603, 1746. This description, written by Linnæus, and "defended" by Lawrence Balk, is a condensation of an earlier one by Artedi (Ichthyologia, 1738 ("Species," p. 35), the same account appearing in abridged form in his "Genera", on page 8, of the same work. In this earlier account the dorsal rays are said to be 13, in the later one and in the Museum Principis they are said to be 11. Linnæus bases the species on the account in the Museum Principis, quoting Artedi's records in the synonymy. For some reason, in quoting from the Museum Principis, Linnæus gives the fin rays D. 14, A. 13 (instead of D, 11, A. 11). In quoting from Artedi he gives D, 13, A, 11, as in Artedi's "Genera," not as in the later "Species."

In the twelfth edition, Linnæus (1766) repeats the account of *Exocœtus volitans*, adding from Gronow "*abdomine utrinque carinato*," true of all flying fishes, the "*carina*" being the lateral line. This he contrasts with his *Exocœtus evolans*, taken from Marcgrave, through Gronow, of which he says: "*abdomine carinis nullis*," which is not true of any flying fish, and "*pennis ventralibus brevissimus*," which is entirely diagnostic of the species called *evolans*.

The only diagnostic features given by Artedi are as follows:

"*Pinnæ pectorales . . . longissimæ, ad initium cauda nempe pertingentes, non latæ, ossiculorum septemdecim. Pinnæ ventrales non longe ab ano, satis longe, albæ. Pinna ani, alba, exigua, ossiculorum undecim brevium. Pinna dorsalis non magna pinnæ ani e diametro, albescens ossiculorum undecim . . . In Mediterraneo.*

In the interest of stable nomenclature it is therefore important to know what fish Linnæus had in mind as *Exocœtus volitans*. In his text he bases it directly on the account in the Museum Principis, which in turn rests on Artedi's record of a flying fish from the Mediterranean. Dr. Einar Lönnberg finds in the Museum Principis, still preserved at Upsala, the specimen (No. 55,) the supposed basis of the account of the Museum Principis. This specimen belongs to the species called *evolans*, although the rays in that species are D. 13, A. 13. The short ventral, "reasonably long, but not reaching the anal," is diagnostic, however, and we may not question Lönnberg's identification.

On the other hand we cannot be sure that this specimen was actually the one from which Artedi's account was drawn, and his record of the ventral fin is ambiguous. I see, however, no reason for setting aside the opinion of the Swedish naturalists (Dr. Lilljeborg having reached still earlier the same conclusion as Lönnberg). This view has been accepted by Jordan and Evermann (Fish. N. M. Am. III, 2830, 1898).

In case, however, the name *Exocœtus volitans* is to be used for a species with long ventrals, it is a question as to whether it refers to the common form called *Exocœtus heterurus* by Rafinesque (the name revived by Jordan and Meek), or with the less abundant form, called *Exocœtus volitans*, by Lutken, and by Jordan and Meek.

Valenciennes identifies *volitans* with the first of these two, Lutken with the second. At best the case is uncertain, and no other Mediterranean species could be considered, the others having black ventrals.

I may note that the specimen of *Exocœtus volitans* from Wood's Hole, figured by Jordan and Evermann, and copied elsewhere, represents *Exocœtus heterurus*. The number of rays in the dorsal, and especially in the anal, when accurately counted, is diagnostic in this group.

The species here noticed should therefore stand, as in recent publications as:

EXOCŒTUS LINNAEUS
(*Halocypselus* Weinland)
Exocœtus volitans L. (1758)
(*Exocœtus evolans* L.; (1766)
EXONAUTES Jordan & Evermann
Exonautes rubescens (Rafinesque)
(*Exocœtus volitans* Jordan & Meek)
CYPSELURUS Swainson
Cypselurus heterurus (Rafinesque)
(*Exocœtus volitans* Cuv. & Val.)

DAVID STARR JORDAN.

MUHLENBERG'S TURTLE NEAR WASHINGTON

A short time ago Mr. Irving Hoffman, of this city, brought a specimen of Muhlenberg's turtle (*Clemmys muhlenbergi* Schoepff) to me. He had collected the specimen a short distance below Stubblefield Falls in Fairfax Co., Va. Since this turtle is very local, it is hoped that more specimens will be found at this station.

While the discovery of this species here does not materially aid in connecting its northern and southern ranges but merely establishes this locality as the southern limit of its northern range, it very clearly illustrates a fact already well known in connection with the species,—its extremely local habits. In spite of extensive collecting in this locality by thorough collectors over a period of a great many years, the species has never been noted heretofore. Is it not, therefore, reasonable to suppose that in time a chain of isolated stations at which the species occurs will be found connecting its northern and southern ranges? Much credit is due to Mr. Hoffman for this interesting find.

The particular specimen under discussion is peculiar in lacking a right costal plate.

MAURICE K. BRADY

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ADDITIONAL RECORDS FOR the ALABAMA HERPETOLOGICAL CATALOGUE

JUST before the World War I had become greatly interested in the herpetology of Alabama and had begun the collection of amphibians and reptiles with a view to making a faunal study of my home county and, perhaps, collaborating with other workers in the publication of a state list. Military service, however, cut short this project, and after the armistice other interest incident upon a three-year trip to South America caused it to be practically forgotten until my return home in August, 1922. The very next month Mr. H. P. Löding's *Preliminary Catalogue of Alabama Amphibians and Reptiles** appeared to remind me of the specimens stored in a Washington attic, but it was not until recently that I had an opportunity to get them out. As these specimens add four species to Mr. Löding's list and furnish many additional county records for species there catalogued I have reexamined the entire data and submit here for the benefit of other workers such notes as seem worthy of publication.

For assistance in the identification of various forms I am indebted to Dr. Leonhard Stejneger, of the U. S. National Museum, and to Mr. Remington Kellogg, of the U. S. Biological Survey. Mr. Kellogg has also very kindly checked the manuscript of this paper—an imposition made necessary by inadequate library facilities.

All specimens, save one, on which these notes are based have been presented to the U. S. Biological Survey and are now in the collections of that Bureau.

Nomenclature and sequence of species follow

*Museum Paper No. 5, Alabama Museum of Natural History, University, Ala., September, 1922.

Stejneger and Barbour, *Check List of North American Amphibians and Reptiles*, second edition, 1923. Where this procedure demands the use of a name different from that employed by Mr. Löding his designation is shown as a synonym.

Those species marked with an asterisk in the following list are first records for the State.

SALAMANDERS

Ambystoma opacum (Gravenhorst)

I have taken this salamander at Barachias, Montgomery County—a county not mentioned by Löding.

**Plethodon metcalfi* Brimley

A specimen taken by E. W. Graves, June 1, 1917, at Long Island, Jackson County, constitutes the first record for the State.

**Gyrinophilus porphyriticus* (Green)

Three young and an adult taken by E. W. Graves on Sand Mountain, Jackson County, in April and May, 1917, are the only specimens so far known from the state.

Pseudotriton ruber ruber (Sonnini)
(*Eurycea rubra rubra*)

Four specimens from Sand Mountain, Jackson County, and one from Saginaw, Shelby County, add two to the five counties already listed by Löding as localities where this species is known to occur.

Eurycea longicauda (Green)

This species has been known heretofore only from Monte Sano, Madison County. There are two adults in the present collection from Long Island, Jackson County.

**Aneides aeneus* (Cope and Packard)
(*Plethodon aeneus*)

The first definite record of the occurrence of this species within the boundaries of Alabama is supplied by a specimen collected by E. W. Graves, June 17, 1917,

"in rocky bluff woods" on Sand Mountain at Long Island, Jackson County.

Desmognathus fuscus auriculatus (Holbrook)

Two specimens from Sand Mountain at Long Island, Jackson County, add a new county record to Löding's list.

TOADS AND FROGS

**Bufo americanus* Holbrook

Löding had "no definite records or identifications of this toad for the State." The present collection contains two specimens taken by E. W. Graves, April 13, 1917, on Sand Mountain, Jackson County.

Bufo fowleri Garman

Collected at Barachias, Montgomery County.

Hyla crucifer Wied

Collected at Barachias, Montgomery County. Heretofore recorded from Mobile County only.

Hyla squirella Latreille

Recorded by Löding from Mobile County only. I have taken the species at Barachias, Montgomery County.

Hyla versicolor versicolor LeConte

Löding records this species from three counties. I add another, Jackson County, on the authority of a specimen from Sand Mountain.

Rana clamitans Latreille

Specimens from Longview and Sand Mountain add Shelby and Jackson Counties to the five already listed by Löding.

Gastrophryne carolinensis (Holbrook)

A specimen has been taken at Longview, Shelby County, by L. S. Golsan, and I have collected the species at Barachias, Montgomery County.

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THE LARGEST RIVULUS

Recently, while going over some unidentified material in the American Museum, New York, I came across a jar containing the largest fishes of the Pœciliid genus *Rivulus* that I had ever seen. They were from the island of Margarita, collected by T. de Booy in 1916. Upon examination they proved to be *Rivulus hartii* (Boulenger), known from Trinidad, and are actually the largest *Rivulus* ever reported. The longest specimen is just 100 mm. from tip of snout to tip of caudal. Regan has reported *hartii* 95 mm. long over all, but most *Rivulus* are very tiny, few reaching 50 mm. Our large specimens are very robust, much more so than the specimens of 70 mm. or so in the same lot.

G. S. MYERS

Jersey City, N. J.